ABSTRACT OF THE DISCLOSURE

A measurement method is provided, which enables to obtain a two-dimensional image with better quantitative-ability by suppressing the influence of the charge-up, when the two-dimensional secondary ion image is obtained for a biological material fixed on a substrate having a high resistivity by utilizing a TOF-SIMS method in a certain wide area. A two-dimensional image having considerably high positioning resolution-ability can be obtained by the procedure in which the pulsed primary ion beam is irradiated at a spot, and the pulse-wise spot-applications of the primary ion beam and the simultaneous detection of the secondary ion generated from the irradiated primary ion beam proceed along with a discontinuous scanning pattern, and eventually the results of these secondary ion measurements are reconstructed into a two-dimensional image in line with the aforementioned discontinuous scanning pattern.